

What is claimed is:

1           1.    A method comprising:  
2           pushing a datum onto a stack by a first processing  
3 thread; and  
4           popping the datum off the stack by a second processing  
5 thread.

1           2.    The method of claim 1 wherein the pushing comprises:  
2           executing a push command on the first processing thread,  
3 the push command having at least one argument,  
4           determining a pointer to a current stack datum,  
5           determining a location associated with an argument of the  
6 push command,  
7           storing the determined pointer at the determined  
8 location,  
9           producing a pointer associated with determined location  
10 the pointer to the current stack datum.

1           3.    The method of claim 2 wherein determining a location  
2 comprises:  
3           decoding the push command.

1           4.    The method of claim 2 wherein determining a location  
2 comprises:  
3           storing an argument of the pop command in a location  
4 associated with the argument of the push command.

1           5.    The method of claim 2 wherein said push command is  
2 at least one of a processor instruction, and an operating  
3 system call.

1           6.     The method of claim 1 wherein popping comprises:  
 2           executing a pop command by the second processing thread,  
 3           determining a pointer to a current stack datum,  
 4           returning the determined pointer to the second processing  
 5 thread,  
 6           retrieving a pointer to a previous stack datum from a  
 7 location associated with the pointer to the current stack  
 8 datum, and  
 9           assigning the retrieved pointer the pointer to the  
 10 current stack datum.

1           7.     The method of claim 6 wherein the location  
 2 associated with the pointer to the current stack datum is the  
 3 location that has an address equal to the value of the pointer  
 4 to the current stack datum.

1           8.     The method of claim 6 wherein the location  
 2 associated with the pointer to the current stack datum is the  
 3 location that has an address equal to the sum of an offset and  
 4 the value of the pointer to the current stack datum.

1           9.     The method of claim 6 wherein the pop command is at  
 2 least one of a processor instruction or an operating system  
 3 call.

1           10.    The method of claim 1 further comprising:  
 2           storing data in a memory buffer that is accessible using  
 3 a buffer pointer having the datum that is pushed onto the  
 4 stack.

1 11. The method of claim 1 further comprising:  
2 using the popped datum as a buffer pointer to access  
3 information stored in a memory buffer.

1 12. The method of claim 1 further comprising:  
2 a third processing thread pushing a second datum onto the  
3 stack.

1 13. The method of claim 1 further comprising:  
2 a third processing thread popping a second datum of the  
3 stack.

1 14. A system comprising:  
2 a stack module that stores data by pushing it onto the  
3 stack and processing threads can retrieve information by  
4 popping the information off the stack,  
5 a first processing thread having a first command set,  
6 including at least one command for pushing data onto the  
7 stack, and  
8 a second processing thread having a second command set,  
9 including at least one command for popping the data off the  
10 stack.

1 15. The system of claim 14 wherein the first and second  
2 processing threads are executed on a single processing engine.

1 16. The system of claim 14 wherein the first and second  
2 processing threads are executed on separate processing  
3 engines.

1           17. The system of claim 16 wherein the separate  
2 processing engines are implemented on the same integrated  
3 circuit.

1           18. The system of claim 14 wherein the stack module and  
2 the processing threads are on the same integrated circuit.

1           19. The system of claim 14 where the first and second  
2 command sets are at least one of a processor instruction set  
3 and an operating system instruction set.

1           20. The system of claim 14 further comprising a bus  
2 interface for communicating between at least one of the  
3 processing threads and the stack module.

1           21. A stack module comprising:  
2 control logic that responds to commands from at least two  
3 processing threads, the control logic storing datum on a stack  
4 structure in response to a push command and retrieving datum  
5 from the stack in response to a pop command.

1           22. The stack module of claim 21 further comprising a  
2 stack pointer associated with the most recently stored datum  
3 on the stack.

1           23. The stack module of claim 22 further comprising a  
2 memory location associated with a first datum on the stack,  
3 the second memory location including:

4           a pointer associated with a second datum which was stored  
5 on the stack prior to said first datum.

1           24. The stack module of claim 22 further comprising a  
2 second stack pointer associated with the most recently stored  
3 datum on a second stack.

1           25. The stack module of claim 22 wherein the stack  
2 pointer is a register on a processor.

1           26. The stack module of claim 23 wherein said memory  
2 location includes SRAM memory.

1           27. The stack module of claim 21 wherein the commands  
2 are processor instructions.

1           28. The stack module of claim 21 wherein the commands  
2 are operating system instructions.

1           29. An article comprising a computer-readable medium  
2 which stores computer logic, the computer logic comprising:  
3           a stack module configured to store data from a first  
4 processing thread by pushing the data onto a stack and to  
5 retrieve the data for a second processing thread by popping  
6 the data off the stack, the stack module being responsive to a  
7 first processing thread command to store data on the stack and  
8 a second processing thread command to retrieve data from the  
9 stack.

1           30. An article comprising a computer-readable medium  
2 which stores computer-executable instructions, the  
3 instructions causing a processor to:  
4           store data from a first processing thread by executing an  
5 instruction to push the data onto the stack; and

6           retrieve the data for a second processing thread by  
7   executing an instruction to pop the data from the stack for  
8   use by the second thread.